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A NEW SPECIES OF CORAL FROM THE JURASSIC OF WYOMING

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Corals are rare in the American Jurassic. Only two species have thus far been described, *Latomeandra orthogrammica* Crickmay[2] from the early Middle Jurassic of California and *Astrocoenia maloniana* Vaughan[3] from the Malone Upper Jurassic of Texas. Eight other species have beeu indicated by Hyatt[4] and Crickmay,[5] but none has yet been described, and at least five of them are *nomina nuda*. Therefore the new species of *Astrocoenia* described below is of more than ordinary interest. It is to be hoped that the American Jurassic rocks will be more thoroughly searched for corals.

The writer is under obligation to Dr. H. E. Vokes of The American Museum of Natural History for the opportunity of studying this material.

Astrocoeniidae

ASTROCOENIA MILNE EDWARDS AND HAIME, 1848

Astrocoenia hyatti, new species

Figures 1 to 6

HOLOTYPE.—Amer. Mus. Nat. Hist. No. 25198.

FIGURED PARATYPES.—Amer. Mus. Nat. Hist. Nos. 25199, 25200, 25201.

UNFIGURED PARATYPES.—204 specimens, Amer. Mus. Nat. Hist. No. 25202.

TYPE LOCALITY AND HORIZON.—"Mouth of trail creek, bank of Shoshone River, 3 miles west of Cody, Wyoming," upper Sundance formation (Kimmeridgian). The specimens came from a bank of the corals and were associated with columnals and arm ossicles of *Pentacrinus* sp., cf. *P. asteriscus* Meek and Hayden (Figs. 7, 8).

DESCRIPTION.—Colonial, forming by extratentacular budding (rare intra-tentacular budding, see Fig. 6), digito-ramose colonies, with cylindrical or slightly compressed, blunt, branches up to 30 mm. in diameter. Corallites prismatic, united by thick, coalesced walls over the rounded tops of which the exsert septa of adjoining corallites unite, usually with the major septa of one calice confluent with the minor septa of another and concealing the wall. Calices moderately deep, polygonal, but appearing circular due to secondary thickening of structures, averaging 2.5 mm. in diameter, occasionally as much as 3 mm. Septa hexamerally arranged in two complete cycles (12), those of the first cycle (6) larger than the rest and extending to the axial space where their inner edges descend abruptly before joining the columella. The septa of the second cycle are lower and shorter but often reach the secondarily thickened columellar axis. In many calices from 2 to 6 septa of the third cycle may be present, making the total number of septa from 14 to 18. Upper margins of the septa dentate with about 10 transverse bead-like dentations on the larger ones, corresponding to faint lateral ridges. Sometimes the larger dentations on the inner ends of the primary septa resemble paliform lobes. Columella small and inconspicuous, deep in the calice, apparently not even developed in some corallites, but often greatly thickened and swollen by stereome. Endotheca subtabular, thin and sparse.

REMARKS.—The appearance and habit of many specimens of this coral are similar to those of some ramose species of *Stylina*, such as *S. arborea* d'Achiardi (Portlandian of Italy), which have very close-set calices, but, so far as is known, the genera of the Stylinidae uniformly lack septal dentations. The calices of this coral vary considerably in aspect from regularly prismatic and deep, typical of *Astrocoenia*, to circular and shallow with broad rounded walls as in *Stylina*. The shallow, broad calices, however, are the result of excessive stereomal thickening, and a thin-section shows, in spite of the consistently poor

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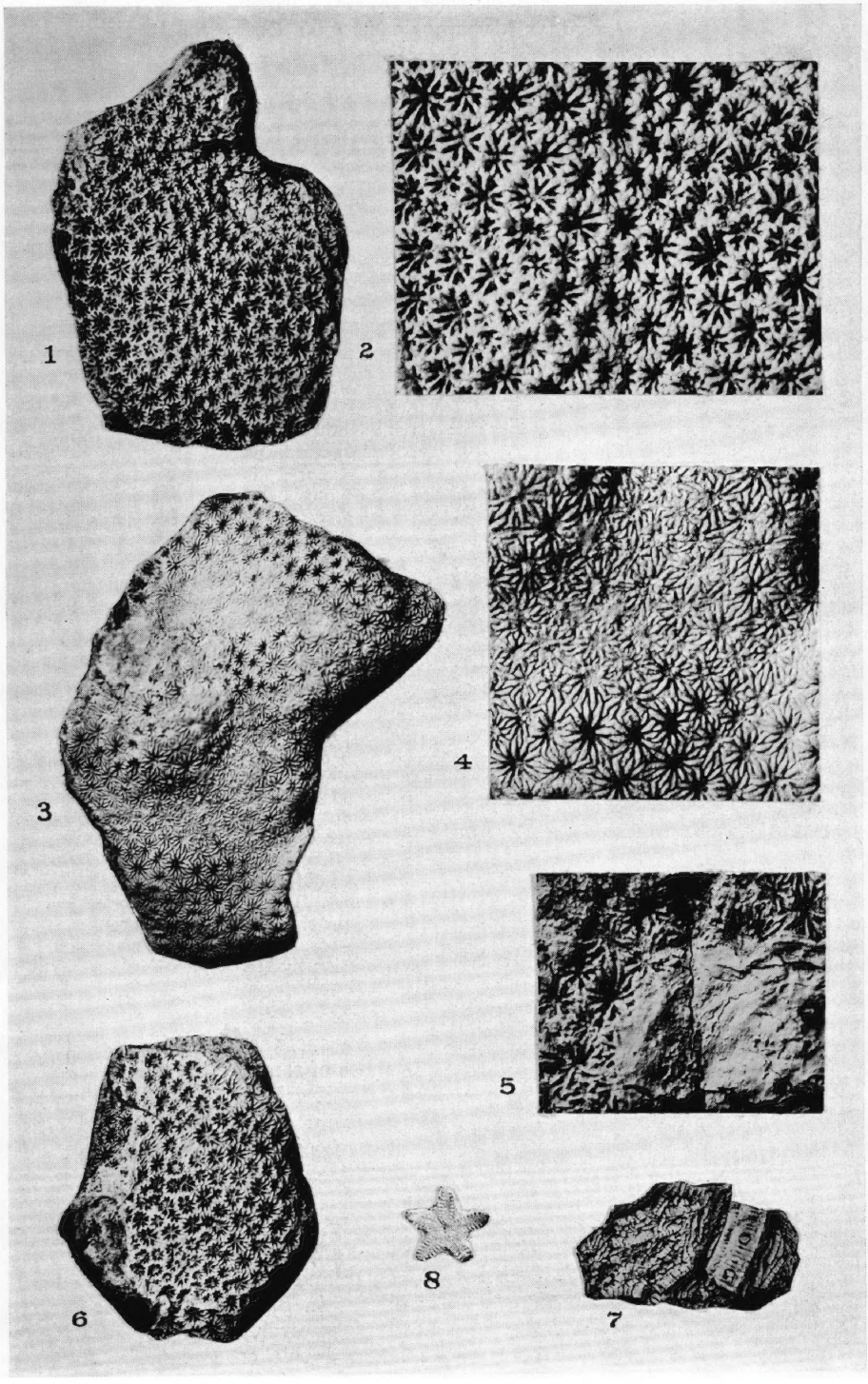
[1] The Ohio State University.

[2] Crickmay, C. H., 1933, Mount Jura Investigation. Geol. Soc. Amer. Bull., XLIV, p. 903 Pl. XXIII, figs. 1–3.
Judging from Crickmay's brief description and figures this appears to be a species of the stylinid genus *Myriophyllia* d'Orbigny (*Eugyra* de Fromentel).

[3] Vaughan, T. W., 1905, in: Cragin, U. S. Geol. Surv. Bull. No. 266, p. 34, Pl. XI, figs. 1–3.

[4] Hyatt, 1892, Jura and Trias at Taylorville, California. Geol. Soc. Amer. Bull., III, pp. 401, 408.

[5] Crickmay, C. H., 1933, *op. cit.*, p. 903.



(See page 3 for caption)

internal preservation of the material, no trace of separate corallite walls but rather the closely fused, secondarily thickened walls of *Astrocoenia*. The reference to *Astrocoenia* is quite certain.

This genus is a widely distributed genus of shoal-water corals ranging from Triassic to Recent (one living species, off Florida). Jurassic species are fairly common except in the Western Hemisphere, and only one has thus far been described from North America—*A. maloniana* Vaughan, already cited. It differs from *A. hyatti* by having 16–20 septa octamerally or decamerally arranged and more massive growth-form. Comparison with other Jurassic species with ramose growth-form fails to reveal any closely related ones: *A. martis* (Thurmann and Étallon), of the Swiss Kimmeridgian[1] and the Lusitanian and Kimmeridgian of Portugal,[2] has from 36 to 40 septa; *A. thurmanni* Étallon, with similar distribution, has smaller calices with 36–40 septa; *A. delemontana* Koby,[3] of the Lusitanian-Portlandian of Europe, has smaller, sharply polygonal calices with 20–24 septa, 8–10 of which extend to the columella; *A. schardti* Koby,[4] from the *Mytilus*-beds, Switzerland, has 18–20 septa but they are decamerally arranged; *A. crassoramosa* (Michelin), of the Coral-lian-Portlandian of Europe,[5] has larger calices, with 20–24 septa, half of which reach the columella; and *A. tenuisepta* Koby,[6] from the upper Lusitanian of Switzerland, has about the same-sized corallites but with 32 septa. *A. carrapateirensis* Koby,[7] of the Lusitanian of Portugal, resembles *A. hyatti* more closely than any other, having the same growth-habit, same thickened walls and *Stylina*-like aspect, same number of septa, but with calices rarely exceeding 1 mm. in diameter.

[1] Koby, F., 1885, Mon. Pol. jur. Suisse. Mém. Soc. Pal. Suisse, XII, p. 297, Pl. LXXXVI, figs. 1–4.
[2] Koby, F., 1905, Faune jur. du Portugal. Pol. du jur. sup., p. 50, Pl. XV, figs. 1–2.
[3] Koby, F., 1885, *op. cit.*, p. 292, Pl. LXXXVII, fig. 4.
[4] Koby, F., 1885, *op. cit.*, p. 299, Pl. LXXXVI, figs. 5–6.
[5] Koby, F., 1885, *op. cit.*, p. 295, Pl. LXXXVII, figs. 2–3.
[6] Koby, F., 1885, *op. cit.*, p. 296, Pl. LXXXVII, fig. 5.
[7] Koby, F., 1905, *op. cit.*, p. 52, Pl. XIV, figs. 10–13.

Figs. 1 to 6. *Astrocoenia hyatti*, new species.
1, Holotype, A. M. N. H. No. 25198. ×1
2, Holotype, showing normal *Astrocoenia* calices. ×2.2
3, Paratype, branch with *Stylina*-like aspect from excessive deposition of stereome. A. M. N. H. No. 25200. ×1
4, Paratype, same specimen as preceding figure. ×2.2
5, Paratype, with two calices where septal dentations can be discerned. A. M. N. H. No. 25199. ×3
6, Paratype, with calices near center of specimen showing intratentacular budding. A. M. N. H. No. 25201. ×1

Figs. 7 and 8. *Pentacrinus* species, cf. *P. asteriscus* Meek and Hayden. (Associated with *Astrocoenia hyatti*.)
7, Portion of column with arm ossicles. A. M. N. H. No. 25234. ×1
8, Articulating surface of a columnal. A. M. N. H. No. 25235. ×3